

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Claims 1, 6, and 16-20 are currently pending and under examination. Claims 2-5 and 7-14 have been withdrawn. By this Amendment, Claims 1 and 6 have been amended. Support for these amendments made to Claims 1 and 6 may be found in the specification, as originally filed, at, for example, page 9, line 25 to page 10, line 11, page 10, line 26 to page 11, line 2, and page 12, lines 21-22. No new matter has been introduced.

The Office Action dated January 16, 2009, stated that the arguments submitted in the previous Amendment are not persuasive and thus, again rejected Claims 1, 6, and 15-18 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 7,176,972 to Mutoh et al. ("Mutoh"). In response to the arguments, the Office Action asserted that Mutoh teaches a plurality of charge-discharging circuit sets (44) (Applicants' note: reference 44 as described in Mutoh is merely a drain line) that is formed adjacent to each vertical transfer column 37 at the end of column of the vertical devices 37 near the horizontal charge transfer device 39.

To the extent that the grounds for rejection of the claims are applicable to the currently pending claims, they are respectfully traversed for the reasons as follows: Claim 1, as amended, recites an electric charge transfer apparatus, comprising, among other things, a plurality of charge-discharging circuit sets each formed at an end of each column of the vertical transfer devices near an horizontal charge transfer device, each charge-discharging circuit set including at least two charge-discharging circuits

connected in a serial manner for discharging the signal electric charge transferred by at least one of adjacent vertical transfer devices, and each of the at least two charge-discharging circuits forming one vertical transfer device, wherein a first charge-discharging circuit of the at least two charge-discharging circuits discharges the signal electric charge transferred by at least one of adjacent vertical transfer devices at a predetermined position, and a second charge-discharging circuit of the at least two charge-discharging circuits discharges the signal electric charge left by the first charge-discharging circuit to an outside of the electric charge transfer apparatus, and wherein the first charge-discharging circuit and the second charge-discharging circuit are supplied with a first transfer control voltages and a second transfer control voltage, respectively.

Similar features of amended Claim 1 described above are also recited in amended Claim 6.

In Mutoh, as described in col. 9, lines 6 to 32 and Figs. 2 and 3, a drain 43 extends parallel to the CCD 37 for vertical read-out. The drain 43 also extends outside of the columns of the photodiodes 33 in the same manner as the CCDs 37 for vertical read-out. Further, the drain 43 extends to outside of the photo-receptive area 32 and is connected to a drain line 44 extending in the horizontal direction. The drain line 44 is connected to a drain line 23 (shown in Fig. 1) that is connected to the ground. As shown in Figs. 3 and 4, the drain 43 is extended and parallel with the column direction of the pixels array, not only formed adjacent to each vertical transfer column of the vertical device 37 at the end of column of the vertical devices 37 near the horizontal charge transfer device 39, as asserted in the Office Action.

Fig. 3 of Mutoh shows that the drain 43 is connected to one of four elements 37a included in a CCD unit 37 via a drain gate 45. That is, the drain gate 45 is provided between the drain 43 and the element 37a of CCD 37 for vertical read-out.

From the above description, the drain 43 and drain gate 45 are not formed at an end of each column of the vertical transfer devices near a horizontal charge transfer device, and neither of them forms one vertical transfer device, e.g., CCD 37 of Mutoh, as in the claimed invention. Indeed, Mutoh fails to teach or suggest at least the combination of features of: each charge-discharging circuit set including at least two charge-discharging circuits connected in a serial manner for discharging the signal electric charge transferred by at least one of adjacent vertical transfer devices, and each of the at least two charge-discharging circuits forming one vertical transfer device, wherein a first charge-discharging circuit of the at least two charge-discharging circuits discharges the signal electric charge transferred by at least one of adjacent vertical transfer devices at a predetermined position, and a second charge-discharging circuit of the at least two charge-discharging circuits discharges the signal electric charge left by the first charge-discharging circuit to an outside of the electric charge transfer apparatus, and wherein the first charge-discharging circuit and the second charge-discharging circuit are supplied with a first transfer control voltages and a second transfer control voltage, respectively, as recited in amended Claim 1, and similarly in amended Claim 6.

Therefore, at least for the differences stated above, the currently pending Claims 1 and 6 are not anticipated by, or rendered obvious in view of, Mutoh and are allowable over the cited art.

Claims 16-20, which depend from allowable independent Claims 1 or 6, are likewise allowable at least due to their dependencies from patentable amended independent Claims 1 and 6 as well as for the additional subject matter recited therein.

CONCLUSION

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding rejection, allowance of Claims 1, 6, and 16-20, and the prompt issuance of a Notice of Allowance are respectfully requested.

Should the Examiner believe that anything further is necessary in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event that additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. §1.136(a), and any fees required therefore are hereby authorized to be charged to our Deposit Account No. 01-2300 referencing docket number **107317-00063**.

Respectfully submitted,



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